

A photograph of a forest landscape. In the foreground, there is a large, mossy tree stump. The ground is covered with green vegetation. In the background, there are many trees and a sunburst effect in the upper left corner.

# MISSOURI. Conservationist

VOLUME 69, ISSUE 8, AUGUST 2008 • SERVING NATURE & YOU



# Twin Pines

I count myself lucky to call the Ozarks home. The license plate on my truck reads “Ozarkr.” It communicates the pride I feel in having grown up in Carter County.

The people of the Ozarks enjoy a unique quality of life due to the abundance of nature that surrounds them. Clear, cool streams teem with life. Trees, grasses and wildflowers cover the rugged hills. Furred, feathered and scaled wildlife fill the valleys and run the ridges. These natural resources also fuel the economic engines of tourism and sustainable forest products that are so important to all who live there.

The Department of Conservation has maintained popular public nature centers in Missouri’s urban areas for several decades. Educational programs are necessary to ensure Missourians understand and value conservation principles. Last April, we dedicated a unique, new conservation education facility in beautiful Shannon County.

Twin Pines Conservation Education Center, on U.S. Highway 60 near Winona, celebrates the wonder and beauty of the Ozarks. Twin Pines serves all citizens but especially the people who call the Ozarks home. It looks not only at our past, but also to our future. By doing so, I hope it inspires Missourians to sustain the richness found there today.

A tour within and around the rustic, wooden building is well worth your time. The site includes an exhibit of an antique sawmill and logging tools, a pond for youth fishing clinics and walking trails through more than 400 hundred acres. These forested areas provide realistic examples for landowner workshops and youth and adult classes in modern forest management.

By studying the heritage of the Ozarks we’re reminded of what happens when we take too much from nature’s bounty. The story of the timber harvest boom and bust of the early

1900s is a focus at Twin Pines and a sober reminder that the land we depend on can give only so much.

The Department of Conservation was formed in 1937 thanks to people who understood the need to give back to the land and to “take” in a sustainable manner. Changing the course of resource conservation is fundamentally about changing the actions of people. Today, due to citizen actions, the natural resources of the Ozarks are healthy and vibrant. We know that understanding nature leads to the desire to manage it wisely and to get outside and enjoy it! By opening the doors to the Ozarks’ past, Twin Pines will help Missourians in that understanding.

Twin Pines is also about educating and inspiring the next generation. Already more than 2,000 students visited in May and June 2008. Our goal is that many school children are able to visit often and learn at Twin Pines.

The great people of the area have already joined in making this a wonderful public place. Usually a corps of volunteers takes time to develop. But, at Twin Pines, there’s a group of dedicated volunteers who have already made major contributions of their time. Volunteers started a youth program called “The Nature Nuts”—even 10-year-olds are taking ownership in Twin Pines and its conservation mission!

The Ozarks is full of natural wonders to explore and enjoy. I hope that Twin Pines inspires you to visit those wonders. I hope it inspires you to learn about them and to act in their favor.

John Hoskins, director



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**OUR MISSION:** *To protect and manage the fish, forest and wildlife resources of the state; to serve the public and facilitate their participation in resource management activities; and to provide opportunity for all citizens to use, enjoy and learn about fish, forest and wildlife resources.*

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**On the cover and left:** Photographer Noppadol Paothong captured these images of dry wetlands. Allowing wetlands to dry out on a seasonal basis encourages growth of many desirable plants and trees, including bald cypress and tupelo. To read more, see the article *When Wetlands Aren't Wet* starting on page 14.

## NextGEN

This section reports on goals established in *The Next Generation of Conservation*. To read more about this plan, visit [www.MissouriConservation.org/12843](http://www.MissouriConservation.org/12843).

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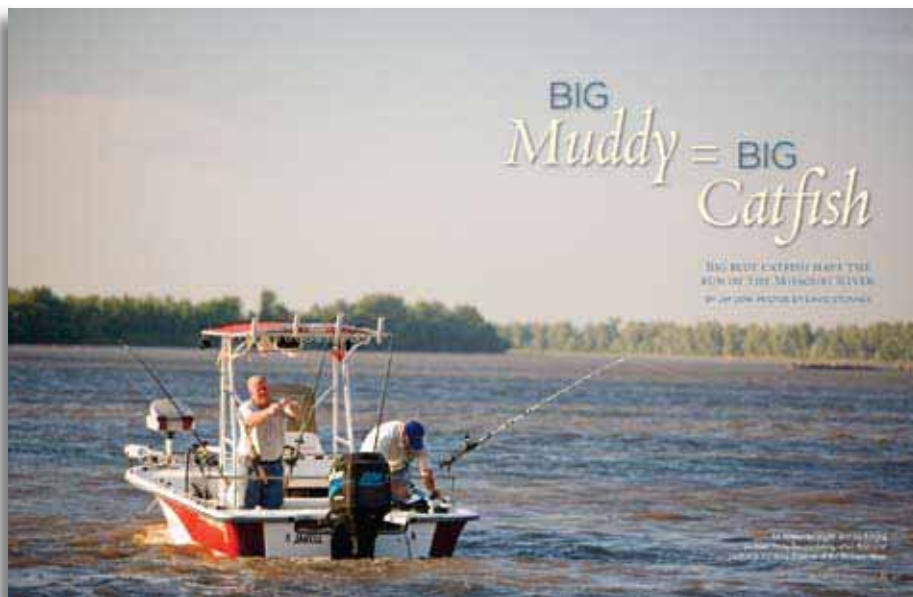
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## NEW TO BLUES

Thanks for your story on fishing for big blues [Big Muddy; June]. I have never heard of them, but I thought I had come along for the ride with you. It was like I was sitting in the boat with my fishing pole in hand waiting to throw it in at the right spot,

why, I almost heard the water lapping at the sides of the boat.

Congratulations, you have done an excellent job reporting your thoughts and laid them right out in black and white for to enjoy. Keep up the good writing.

*Pam Carey Rawski, Wheatland*

## HUNGRY HUMMERS

Your informative article on hummingbirds was of great interest to me [Nature's Helicopters; May]. I have been feeding hummingbirds for over 10 years. The numbers increase each year as they return to the same feeders.

During the months of July and August, I feed at least a gallon of homemade nectar each day. Your article stated that a hummingbird will eat half its weight in nectar each day. Other sources I have read say they eat twice their weight in nectar each day. One source gave the hummingbird's weight at 1/10 of an ounce. If they

eat twice their weight in nectar each day, that would mean I have over 600 birds feeding at my feeders each day. If they eat half their weight, that would be 2,560 hummingbirds per day.

Could you please clarify the correct weights for me? I'm curious as to how many hummers actually visit my feeders each day.

*Janice Schnurbusch, O'Fallon*

*Editor's note: According to Andy Forbes, resource scientist, "You are correct—hummingbirds typically consume far more than their weight per day. Studies have shown that they can consume three times their weight in nectar per day, perhaps even more. Add to that perhaps another 50 percent of their diet that is soft-bodied insects, and that's a lot of food for such a little bird. There are a lot of young birds and some early migrants around at that time of year, which can result in quite the circus at feeders. Several hundred might stay in an area to capitalize on a good food source, like yours, as they migrate."*

*We regret the error and any confusion it might have caused our readers.*

## ON MEDIUM & MESSAGE

It was great to read how the changes in the magazine production methods have reduced the amount of materials and energy used ["Note to Our Readers"; June]. It was also a good idea to remind your readers about the importance of recycling. I'd like to suggest that there is much more usefulness in its printed form before returning it to the "pulp pit."

Every month I have to make the tough decision of who else gets to enjoy the fruit of your labor. Sometimes I'll put it [the *Conservationist*] in the magazine basket by the treadmills at the gym, or I might leave it at the doctor or dentist office waiting room. A few times I've even deposited issues in different states, vicariously bragging about Missouri and the wonderful way that you capture its many facets. Wherever the location, it doesn't stay long.

To recycle the local paper of yesterday's news is commendable, but to not recirculate the treasures of your production is contemptible!

*Michael J. Baumann, Imperial*





# MISSOURI. Conservationist

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## Reader Photo STILL LIFE

Robert Brown captured this photo of a white-tailed buck in velvet in Pike County. "I was driving around near my property, checking out the deer population, and I happened to catch a glimpse of movement in the weeds," said Brown. "I stopped and watched the buck for several minutes and then remembered that I had my camera with me, so I was able to get a few good shots of him. He was a perfect subject and barely moved the whole time. He really thought he was hidden!"



This month check out our featured Web pages, or go online anytime to learn more about conservation at [www.MissouriConservation.org](http://www.MissouriConservation.org).



## DROUGHT STRESS

***www.MissouriConservation.org/14460***

Frequent light watering is sufficient for lawns, but it doesn't address the needs of trees during especially dry times. Watering can help to reduce the effects of stress.



## HUNTER EDUCATION

***[www.MissouriConservation.org/8821](http://www.MissouriConservation.org/8821)***

Hunter education provides a foundation in hunting safety and ethics. This training has helped reduce Missouri's hunting accident rate by 70 percent.



## DOVE HUNTING

**[www.MissouriConservation.org/7469](http://www.MissouriConservation.org/7469)**

Dove season opens with summer on the wane. Last year the Department provided 2,800 acres of managed dove areas on 800 fields located on 99 conservation areas.



## ASK THE OMBUDSMAN

**Q ■** When fishing, is each person required to have his or her own fish stringer?

**A** ■ Here's an excerpt from Chapter 4 of the *Wildlife Code*: "3 CSR 10-4.137 Wildlife Identification: The taker and/or possessor of any wildlife shall keep the wildlife identifiable from wildlife taken or possessed by another. If the wildlife is attended, the wildlife shall be plainly labeled with the full name of the taker and/or possessor...." Party fishing (or hunting) is illegal. Each angler (hunter) is responsible for taking their own catch. Fishermen and hunters may give away what they take only at the end of the season.

This regulation is helpful in allowing everyone an equal opportunity to take fish and game. The key to complying with the regulation is to be able to identify what you took.

If you have two people sharing a stringer or a live well, one can snip the tail fin of the fish which they catch and keep, or otherwise mark what they take—making it identifiable from fish caught by the other angler. Of course, the simplest and easiest way to stay legal is to keep your catch separate.

For more information about storing and giving away wildlife, see Chapter 4 of the *Wildlife Code*. Code books and summaries are available wherever permits are sold and at Department of Conservation offices. You can also consult the on-line version of the *Code* at [www.sos.mo.gov/adrules/csr/current/3csr/3csr.asp](http://www.sos.mo.gov/adrules/csr/current/3csr/3csr.asp).

Ombudsman Ken Drenon will respond to your questions, suggestions or complaints concerning Department of Conservation programs. Write him at PO Box 180, Jefferson City, MO 65102-0180, call him at 573-522-4115, ext. 3848, or e-mail him at [Ken.Drenon@mdc.mo.gov](mailto:Ken.Drenon@mdc.mo.gov).

on the  
**TV**

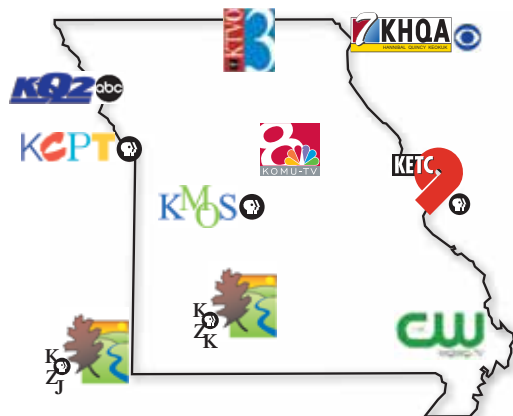
For additional show information and video clips,  
be sure to visit

**[www.MissouriConservation.org/8726](http://www.MissouriConservation.org/8726)**

**Check local listings for times in your area.**



Television  
the way  
nature  
intended!







## Species of Concern

## Interior Least Tern



**Common name:** Interior Least Tern

**Scientific names:** *Sterna antillarum athalassos*

**Range:** Missouri and Mississippi rivers

**Classification:** State and federally endangered

**To learn more about endangered species:** [www.MissouriConservation.org/8227](http://www.MissouriConservation.org/8227)

## Cicada Killers on the Loose

*Females can sting but seldom do.*

A distressed squawk followed by a cicada tumbling from a tree usually announces the presence of a cicada-killer (*Sphecius speciosus*). Measuring nearly 2 inches, these wasps look fearful. However, the male of the species has no sting. Females are not aggressive, seldom using their stings on anything but their prey, which serve as food for developing wasp larvae. Females dig burrows 6 to 10 inches deep. The larvae form pupae, from which the next generation emerges the following summer.



## Birds Eating Wild

*Natural foods abound in late summer.*

Nature sets a feast for birds in late summer and early fall. Insects, snails and other invertebrates provide high-protein meals for birds of almost every feather. Acorns and other "hard mast" crops are dietary staples of turkeys, waterfowl and other large birds. Meanwhile, pokeberries, elderberries, wild grapes and dogwood fruits are ripening, and a dizzying array of nutritious seeds, from wild grasses and ragweed to sunflower and coneflower, are ready for finches, cardinals and other songbirds to eat. Hummingbirds sip nectar from jewelweed.

Birds appreciate meals at bird feeders, but they might be less frequent feeder visitors this time of year because natural foods better meet their nutritional needs. Buy wild planting stock from nurseries that participate in Grow Native! For more information, visit [www.MissouriConservation.org/16570](http://www.MissouriConservation.org/16570).



TERNs ARE GRACEFUL fliers that dive into water to catch their food. The only species that nests in Missouri is the endangered interior least tern. Its yellow bill and white forehead distinguish it from others. Measuring 9 inches from the tip of its yellow bill to the end of its forked tail, it is Missouri's smallest tern. Least terns once nested on sandbar islands in the Mississippi and Missouri rivers, where they were safe from predators. However, changes in the rivers have eliminated most of these safe havens. The only regular least tern nesting sites in Missouri waters in recent years have been along the Mississippi River in extreme southeastern Missouri. They nest from May to September, usually laying two olive-colored eggs in shallow depressions. They also nest along the Missouri River upriver from the Show-Me State. They are seen elsewhere in Missouri only rarely—mostly in August and September—along the state's two great rivers.

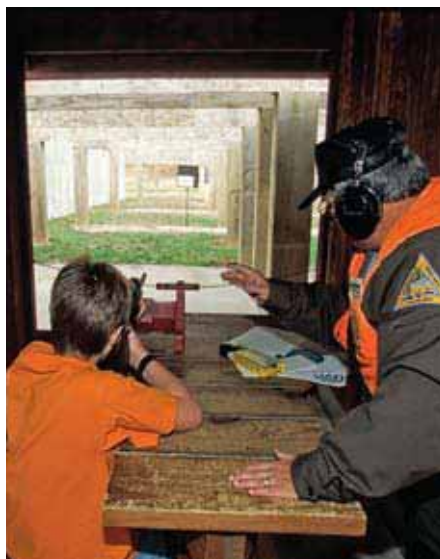




## KC Discovery Center

*This "green" gem is an oasis in the city.*

The Anita B. Gorman Conservation Discovery Center on Troost, just south of Emmanuel Cleaver II Blvd., is Kansas Citians' escape hatch from urban hustle and bustle. Visit this postage-stamp nature area to rest your eyes on native plants and wildlife, or step inside and see green architecture in action. There is a nature shop, too, where you can buy nature books or nature-themed gifts for any age. Disabled visitors will find the visitor center and wheelchair accessible trail to their liking. Call 816-759-7300 for more information or go online at [www.MissouriConservation.org/2303](http://www.MissouriConservation.org/2303).



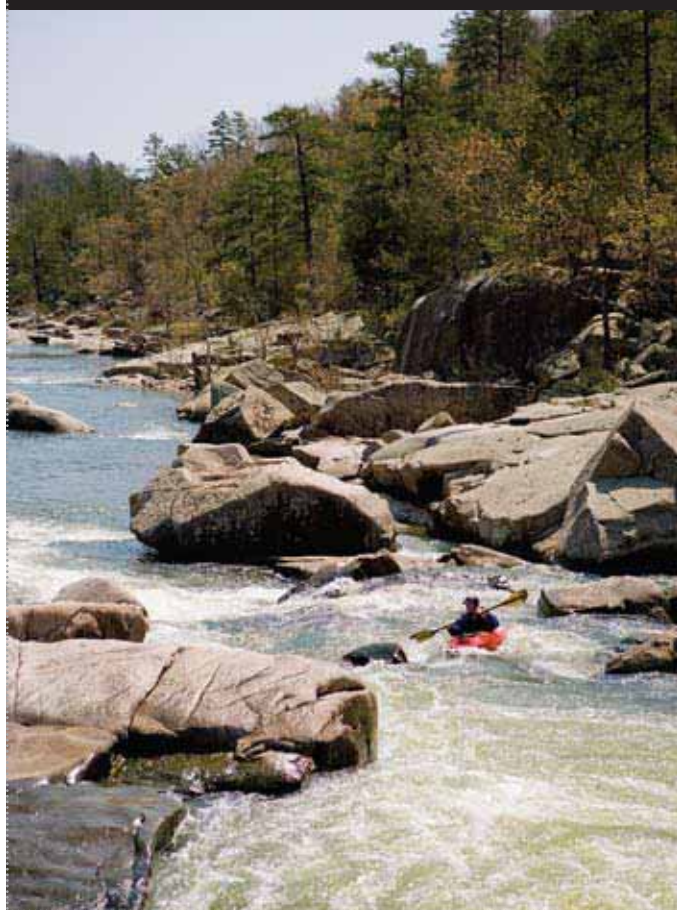
on state holidays. Targets and target stands are provided for fees of \$3 per hour or per round of trap or skeet. Henges Range is at 1100 Antire Road, High Ridge. More information is available at [www.MissouriConservation.org/2333](http://www.MissouriConservation.org/2333) or by calling 636-938-9548.

## Jay Henges Range

*Now is a great time to tuneup for hunting season.*

It is time to sharpen rusty shooting skills and ensure firearms are in good working order for hunting season. Jay Henges Shooting Range and Outdoor Education Center is the perfect place for St. Louis area residents to perform these important late-summer rituals. Henges has ranges for rifle, pistol, trap, skeet, shotgun patterning and archery, and offers shooting classes. The range is open from 2 to 8 p.m. Wednesday and from 10 a.m. to 4 p.m. Thursday through Sunday through Aug. 31. Hours from Sept. 1 through April 30 are 10 a.m. to 4 p.m. Wednesday through Sunday. The range is closed

## Trail Guide



## MISSOURI'S GORGEOUS GORGES



THIS 697-ACRE AREA in Madison County is better known to kayakers than hikers. Torrents of water cascade down its rocky gorge after rainstorms. This time of year, it is a great place to escape summer's heat. The 1-mile,

disabled-accessible Tiemann Shut-Ins Trail has many switchbacks and takes about 30 minutes to traverse. It ends at an overlook with a view of the shut-ins. The rugged Turkey Creek Trail runs 1 mile on conservation land and another 1.5 miles on Silver Mines Recreation Area. The St. Francis River runs through the area and is bordered by elm-ash-maple forest along the watercourse and oak-hickory-pine forest in the uplands. Autumn colors blaze here in October. Besides forming the shut-ins, the area's geologic history of igneous and sedimentary deposits make the location ecologically interesting. The U.S. Forest Service's Silver Mines Recreation Area and campground is just downriver.

**Area name:** Millstream Gardens

**Trails:** Two, totaling 2 miles

**Unique features:** Shut-ins, natural area

**For more information:** Call 573-290-5730, or visit [www.MissouriConservation.org/a8210](http://www.MissouriConservation.org/a8210)





## TAKING ACTION

## Conservationist of the Year Award



**Group featured:** Conservation Federation of Missouri

**Group mission:** To educate, inspire and empower individuals and organizations to take action to conserve and to support the sustainable harvest and wise use of fish, wildlife, forest and other natural resources, to help protect our planet's environment, and to nourish an ethic of stewardship and enjoyment of our natural world.

**Award sponsored:** Conservationist of the Year—For the most outstanding overall conservation effort and achievement, most significant contribution to the cause of conservation or toward solution of a major conservation problem in the state during the year. This effort can be in any area of natural resource conservation.

**D**R. VINCE TRAVNICHEK was recently presented with the Conservation Federation's highest honor, the Conservationist of the Year award for 2007. Travnichek is a resource science field station supervisor for the Conservation Department, and he oversees activities related to monitoring fish populations on the Missouri River. His work has been widely published in professional journals and reports, and he regularly serves on committees related to river resources, paddlefish, sturgeon, catfish, angler records and more. Travnichek exemplifies what it means to be a fisheries professional.

Conserving our air, water, soil and wildlife resources is an ongoing challenge that requires a continuing commitment by all citizens, and the Federation seeks to give individuals the recognition they deserve. Any resident of Missouri is eligible to be nominated for a conservation award. For more information on award categories, or to print nomination forms, visit the Federation's Web site at [confedmo.org/CFM/awards.html](http://confedmo.org/CFM/awards.html), or call them at 573-634-2322 or 800-575-2322.

## Bald Eagle License Plate

*Donations benefit wildlife habitat and nature programs.*

Missourians can now display their support for conservation with a new bald eagle conservation license plate from the Missouri Conservation Heritage Foundation.

Missouri wildlife artist Al Agnew donated the eagle artwork from his painting *Spirit of Freedom*. The dramatic image helps demonstrate Missouri's role in national conservation efforts. "Bringing our national symbol back as a year-round resident to states where it had disappeared is something Americans can celebrate," said Foundation Executive Director Rick Thom, "And bald eagle conservation efforts in Missouri are a significant part of this success story." In 2007, bald eagles were removed from the federal endangered species list, with more than 10,000 pairs of the birds nesting in the U.S., and about 150 nests in Missouri.

The Missouri Conservation Heritage Foundation directs license plate revenue to conservation efforts statewide. Visit [www.mochf.org](http://www.mochf.org) or call 800-227-1488 to order your own eagle, bluebird or deer license plate. —by Carol Davit







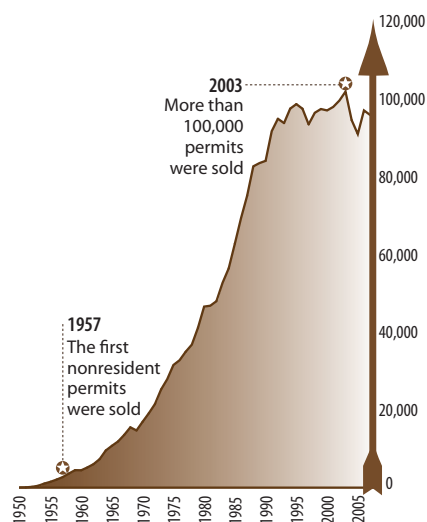
## Bowhunting

*Looking for a good excuse to spend time in the woods?*

Bowhunting began when people figured out how the rebounding energy of a bent stick could propel another, smaller stick. Judging by the huge number of arrowheads unearthed in Missouri, a long era of presettlement bowhunting followed. In 1946, regulated bowhunting for deer in Missouri began. In 1952, we recorded the first deer taken by archery methods during the modern bowhunting era.

Although bowhunting has become gadgety for some, many like it because it remains an elemental challenge. A successful bowhunter has to gain proficiency in shooting, learn enough woodcraft to predict the movements of his quarry and remain motionless and quiet for hours at a time. Most deer are shot within 20 yards of where archers wait. Getting a naturally skittish animal with superior senses to approach that close is an achievement.

The chart below shows how sales of resident and nonresident regular archery permits have skyrocketed. Permit privileges and season length have also increased through the years. The dates for the upcoming Archery Deer & Turkey season are Sept. 15–Nov. 14 and Nov. 26–Jan. 15.



## Shooting Ranges

## Scout it Out



**Name:** Bois D'Arc Conservation Area

**Location:** In Greene County off Route UU, southwest of Willard. The area headquarters is at the junction of farm roads 59 and 94.

**For more info:** [www.MissouriConservation.org/a8517](http://www.MissouriConservation.org/a8517)



ARCHERS AND BOWHUNTERS can hone their skills at two shooting ranges on the Bois D'Arc Conservation Area in Greene County. The more formal Andy Dalton Shooting Range and Outdoor Education Center has both a static-range, where archers stand and shoot at a line of targets, and a 3-D animal range with a system of trails that allows hunters to

practice in simulated field conditions. The range even includes a platform for practice shooting from an elevated stand. Use of the range costs \$3 per hour.

Bois D'Arc also offers a smaller, unsupervised archery range that doesn't cost anything to use. This walk-through range, designed with bowhunters in mind, features animal targets painted on backstops.

Bois D'Arc Conservation Area even offers great bowhunting. Only archery methods are allowed for deer hunting on the area, and hunting pressure is moderate, despite a relatively high (22 per square mile) deer population.

For information about Bois D'Arc Conservation Area, call 417-895-6880. To find a Conservation Department archery range in your area, call a nearby Conservation Department office. Regional office numbers are listed on Page 3.





## “Be” the Target

*Students can't miss with this archery program.*

Focus is the key to hitting the target in archery. Many believe it's the secret to success, too. That's why archery programs are becoming popular in Missouri schools. Anyone who can pull a bow can find satisfaction in target archery. The Zen-like focus and discipline students develop as they improve their shooting carries over into their studies and personal lives. Target archery is like exercise for the mind. It teaches kids to concentrate.

The Missouri National Archery in the Schools Program supports Olympic-style target archery in fourth- through 12th-grade physical education classes. Teachers report that school attendance, behavior and grades improve on days when archery target shooting is scheduled. In more than a third of the schools participating, students have started after-school archery clubs, and more than a quarter of participating students buy their own archery equipment.

The Conservation Department and the Conservation Federation of Missouri together provide \$500 to help schools obtain equipment for the MoNASP. For grant details, contact your local Outdoor Skills Specialist, or go to [www.MissouriConservation.org/16066](http://www.MissouriConservation.org/16066).



## Home on the Range

*Build a home archery range for inexpensive family fun.*

Archery is an ancient art, but it's also an ancient entertainment. If it's legal where you live, and you can make it absolutely safe, a target-archery range on your property will provide endless enjoyment.

Buy a National Archery in the Schools Program compliant target or just pile up three straw bales and attach paper target faces to them. Spend evenings improving your skills with a longbow, recurve bow or compound bow. Make your own special target faces, such as tick-tack-toe or darts, for games, or put balloons on the target that will pop with a good shot. Handicap events by having better shooters stand farther away.

## BIRDS OF A FEATHER



GOLDFINCH: JIM RATHER; ARCHERY: DAVID STONNER

## American Goldfinch

AMERICAN GOLDFINCHES ARE birds of many names. They're often called wild canaries, probably because they are colorful and noisy. Others call them lettuce birds, recognizing that goldfinches like the seeds of lettuce plants that have been allowed to mature. The name yellowbird has also stuck, no doubt because there is no yellower bird than the male American goldfinch in summer. Both males and females, however, wear drab coats over winter.

Science refers to the American goldfinch as *Carduelis tristis*. You might roughly translate that Latin genus and species name to “sad thistle.” Why should American goldfinches be considered sad? They flit around happily, are highly gregarious, and have a pleasing undulating flight pattern. What's more, they usually sing as they fly. Perhaps the idea of melancholy can be traced to one of the bird's calls, which is often translated as, “Dear me! Dear me!”

Another common name, thistle bird, is extremely apt for American goldfinches. That's because the species' unusual late summer breeding likely evolved to coincide with when thistles go to seed. Thistle seeds are so important to the feeding of young goldfinches that researchers report nearly every nest they find is near a thistle seed source.

Goldfinches build nests of tightly woven vegetation in shrubs or small trees and line the nests with plant down.





## Wetlands Reserve Program

*Helping farmers, wildlife and you*

Missourians increasingly are turning to a federal program that lets them farm more efficiently and create recreational paradises. Everyone benefits from reduced flooding.

The Wetlands Reserve Program pays landowners to voluntarily restrict activities on low-lying land. It gives landowners cash for placing 30-year or permanent conservation easements on their acreage, agreeing not to farm or develop the land during the life of the easement.

Some property owners use the money they receive from enrolling land in WRP to buy other land that is more reliably productive for agriculture. They can keep their WRP land for recreational use or sell it to further defray the cost of buying replacement land.

Others choose to invest WRP money in improving existing farmland, paying off debts or making home improvements.



Wildlife lovers sometime buy low-lying land and then enroll it in WRP to fulfill dreams of owning a private wildlife paradise. They use WRP cash to create places to hunt, fish or watch wildlife. The U.S. Department of Agriculture Natural Resources Conservation Service offers such landowners technical and financial support to make conservation improvements. State conservation programs can help, too.

Waterfowl hunters may get help building managed wetlands. Nature lovers can get assistance establishing bottomland hardwood forest or planting wildlife cover and food.

Land enrolled in WRP catches water from rainfall, releasing it gradually into streams and thereby reducing flooding. WRP acres also provide space for swollen streams to spread out, lowering flood crests.

Landowners have voluntarily enrolled more than 2.1 million acres in WRP nationwide. Missouri landowners have enrolled more than 120,000 acres and received \$174 million in return.

To learn more about WRP, contact the nearest USDA service center or visit [www.nrcs.usda.gov/programs/WRP/](http://www.nrcs.usda.gov/programs/WRP/). To find out about state conservation cost-share programs, contact your regional Conservation Department office (see Page 3).

## Stream Team



### Girshner Family



DAVID GIRSHNER WAS surprised at the passion he developed for stream conservation after buying 9 acres on Finley Creek in Christian County. He was more surprised by others' passion.

"Initially it was me and my immediate family," he recalls. "Now a lot of the family has jumped on board. My mom comes and cooks for the whole crew, and my son is old enough to be involved. My uncles and cousins and friends are part of the team, too."

Together they have conducted 20 litter pickups involving nearly 700 people and removed 34.5 tons of trash from Finley Creek and nearby streams.

"This will be the 15th year I have done this litter pickup, and I still get excited," he said. "It just amazes me how many people come to these things. I've got people from five states coming to a stream cleanup at the end of this month."

**Stream Team Number:** 387

**Date formed:** March 1993

**Location:** Finley Creek

**For more info about Stream Teams:** [www.mostreamteam.org](http://www.mostreamteam.org)





## Our Glorious Forests

### STATE FOREST NURSERY



**Size of nursery area:** 750 acres

**Location:** In Texas County north of Licking on Highway 63, 1 mile west on Route CC, then 2 miles south on Shafer Road

**Highlights:** Quercus Flatwoods Natural Area (48 acres of post oak flatwoods), picnic area, 50 acres of seedbeds, 3-acre fishing lake and staffed office

**Call for more info:** 573-674-3229



YOU COULD THINK of the George O. White State Forest Nursery as Missouri's cradle of conservation. The U.S. Forest Service launched it in the 1930s to support reforestation efforts. After World War II, they transferred use and, eventually, full ownership of the nursery to the Missouri Department of Conservation. Today, manager

Greg Hoss and his staff continue the nursery's original conservation mission, tending 50 acres of seedbeds and raising 6 to 7 million mostly native tree and shrub seedlings a year. Between November and May, they ship an average of 5 million seedlings to Missourians for the purpose of wildlife habitat restoration, reforestation and erosion control. "This is our 60th year of distribution," Greg says. "We have landowners that have been ordering trees from us for decades." Named in honor of Missouri's first state forester, George O. White, the nursery invites visitors to tour the nursery and fish the area's 3-acre lake.

## Outstanding Tree Farmer

*Hunt club wins recognition for forest management.*

The Missouri Tree Farm Committee has awarded Pike County's Malinmor Hunt Club its American Tree Farm System® "Outstanding Tree Farmer of the Year" award for 2007. This competition recognizes private landowners for exceptional efforts to enhance their forestland. To qualify for the award, landowners must be members of the American Tree Farm program and follow a management or stewardship plan for their property. To learn more about qualifying for this award, call your Department of Conservation regional office (see Page 3).



## We All Live in a Forest

*Trees shade and cool fish habitat.*

Did you notice your surroundings the last time you landed a fat trout or smallmouth bass? Most likely you were standing in a shady stream or by a shaded lake. This connection between trees and game fish is no accident. Fish and their habitat depend on trees to keep them shady and cool. Forests also create specific types of fish habitat. Trees' root systems reinforce stream banks, reduce erosion and create banks where lunkers can hide. In addition, forests provide large, woody debris that creates fish habitat, and falling leaves provide an energy source for the insects that fish feed on. If a stream runs through your land, you can ensure its health with sustainable forest management.







## Control Autumn Olive

*Cut trees and apply herbicide now.*

Originally used for windbreaks and wildlife cover, non-native autumn olive has become an invasive pest. To control it, cut the plant off at the main stem and immediately apply herbicide to the stump now through September. This treatment kills root systems and prevents resprouting. In addition, applying herbicide specifically to the stump reduces the chance of damaging nearby desirable vegetation. Herbicides recommended include glyphosate, triclopyr and picloram. For more details about controlling autumn olive and other invasive species, visit [www.MissouriConservation.org/17781](http://www.MissouriConservation.org/17781).



## Grant Benefits FFA Chapters

*Wildlife management and study on ag lands*

Whether your FFA chapter is planning an on-site project or exploring a collaborative effort with a local landowner, the United Sportsmen's League Wildlife Conservation Grant Program can help. Available through competitive application, each grant is worth up to \$500. Funding comes from a cooperative effort between the USL and MDC. Any Missouri FFA chapter is eligible to apply. Recently, the FFA chapter at Chillicothe High School in Livingston County won \$500 to



reclaim a wetland area at their school farm. "The grant funds will help us improve water quality in our downstream pond," said Chillicothe FFA chapter leader Rusty

Black. Deadline for application is Nov. 15. Visit [www.MissouriConservation.org/8793](http://www.MissouriConservation.org/8793) to download the application, or contact Veronica Feilner at 573-522-4115, ext. 3285.

Add Native Grass Pastures for Fat Cows and Healthy Grasslands.

On the Ground



ADDING NATIVE WARM-SEASON grass pastures to your cool-season grazing system will boost your summer weight gains and enhance habitat for grassland wildlife. Cool-season grasses, such as brome and fescue, can't hold up to summer's heat, and they can't support ground-nesting birds, such as quail. Warm-season grasses (bluestems, Indian grass, switchgrass) grow most in the late spring and summer. Turning your herd out to graze these native grasses during their prime keeps your cattle feeding on high-nutrition forage the entire grazing season. Adding native grass pastures to your grazing system will also provide food and cover for grassland wildlife. For example, clump-forming native grasses will produce random patches of bare ground that quail chicks need to survive. To learn more about how adding native grass pastures to your rotational grazing system can produce fat cows and healthy grasslands, visit [www.MissouriConservation.org/7769](http://www.MissouriConservation.org/7769).

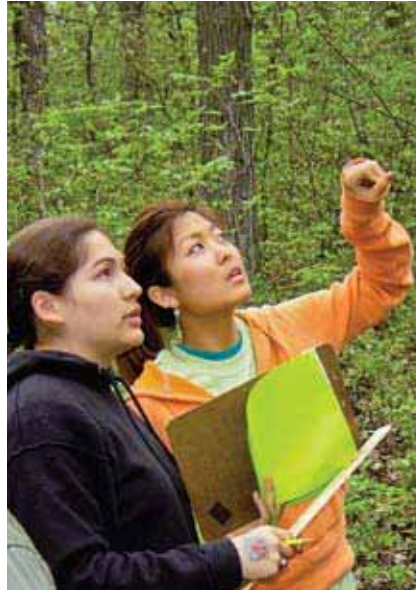




## Get Ready for Envirothon!

*St. Louis high school won \$10,000 in 2007.*

If you're a high school student or educator and you're not already involved with Missouri's Envirothon program, now is the time to put together your school's five-member team and prepare for next May's competition. Envirothon is a great way for students and teachers to have fun learning about natural resources. The Envirothon is sponsored by the Missouri Association of Soil and Water Conservation Districts with help from the County Soil and Water Conservation Districts, the Missouri departments of Conservation and Natural Resources and University of Missouri Extension. The State's winning school goes on to compete in the national Canon Envirothon later in the summer. In 2007, St. Louis' Parkway North High School won fourth place and took home \$10,000 and Canon photo equipment. For more information about starting an Envirothon team and preparing to compete in the 2009 competition, visit [www.MissouriConservation.org/17866](http://www.MissouriConservation.org/17866).



## Field Trip Grants

*Teaching students about nature, in nature*

Field trips! Students love them, but schools can't always afford the transportation. That's why MDC offers Conservation Field Trip Grants. This program distributes \$7 per student, up to 100 students, to public, private, parochial or home-school educators for field trips related to fish, wildlife and natural habitats. Appropriate destinations include Conservation Department sites or any Missouri location that features fish, wildlife or natural habitats. MDC accepts Field Trip Grant applications on an ongoing award basis Sept. 1 through March 1, or until all funds are awarded. To download the application, visit [www.MissouriConservation.org/8793](http://www.MissouriConservation.org/8793).

## NATURE ACTIVITY



### Archery Basics with Wildcat Glades Staff



WHETHER YOU ARE interested in bowhunting or shooting targets for fun or competition, you'll learn everything you need to get started at the Introduction to Archery workshop Aug. 19.

Offered by the Wildcat Glades Conservation and Audubon Center staff, the workshop is designed to introduce new shooters to the lifetime sport of archery. Plan to meet at Walter Woods Conservation Area, which is just down the road from the Wildcat Park in Joplin. The class is free and open to the public, and it includes equipment and targets. To register, please call the number listed below.

Located in Joplin's Wildcat Park, the Wildcat Glades Conservation and Audubon Center lies next to an area of chert glades, among the last of their kind on the planet. The Audubon Center is a partnership project of Audubon Missouri, the City of Joplin and the Missouri Department of Conservation.

**Program:** Introduction to Archery

**Who should attend:** Adults and children accompanied by adults

**When:** Aug. 19, 6:30 p.m.

**Where:** Walter Woods CA. Go 1.25 miles east of Redings Mill on Route NN, then right onto Dutch Elm Drive for .75 mile.

**To register, call:** 417-629-3423







# When Wetlands Aren't Wet

An occasional dry stretch never hurts—and often helps—swamps and marshes.

BY A. J. HENDERSHOTT





**M**y heart was thumping to the beat of teal wings in flight as I approached one of my favorite playgrounds: the swamp at Otter Slough Conservation Area. I was excited because of what was new at the swamp—it was dry!

I used to think wetlands had to be wet at all times. So did most other wetland managers. We have since learned that it helps swamps to occasionally dry out. This is a new concept, and I was anxious to see firsthand how lowering the water level for a short time would affect the swamp.

### Drying Out Otter Slough

Conservation Department Biologist Tommy Marshall works at Otter Slough and is carrying out and monitoring a management plan that involves temporarily draining the swamp to let parts of it dry out.

According to Marshall, the tupelo trees that have long stood like quiet sentries watching over the swamp immediately benefited from the dry conditions. Tupelos, like

**Dry periods for wetlands help regenerate all types of vegetation, including this young baldcypress.**



many swamp trees, can tolerate flooding and the resultant low oxygen levels near their roots, but they don't thrive in permanently flooded conditions. After numerous years of growing in water, the tupelos at Otter Slough had yellowish green leaves, extremely swollen trunks, and only about 2 inches of annual growth.

This year, however, Marshall found 12 inches of limb growth, and the trees have dark green leaves and vigorous stems. He said cypress trees and buttonbush seedlings also benefitted. Roots of all tree species need oxygen from the soil, especially when the trees are young. It was as if each tree and plant took a deep breath and showed what it could really do.

Providing a dry period for wetlands helps regenerate all types of vegetation. Seeds germinate when the soil and air are allowed to mix. Cover the land with water, and oxygen drops from 20 percent to less than 1 percent. Little oxygen equals little germination.

### Down on Monopoly

Monopoly Marsh on Mingo National Wildlife Refuge is surrounded by swamp and bottomland trees. The open marsh has been dominated by spatterdock and lotus for many years because these species can germinate underwater. Although these plants are native to Missouri and provide places for immature ducks to feed, their seeds are not highly nutritious and the vegetation makes poor nesting cover.

Daniel Wood of the U.S. Fish and Wildlife Service at Mingo National Wildlife Refuge has been adjusting water levels to improve plant diversity at the marsh.

Occasional drawdowns in summer have increased the occurrence of millet, giant cut grass, sedges and rushes on Monopoly Marsh, providing more nesting and feeding areas for songbirds, shorebirds and herons. The improved plant diversity has even drawn least bitterns to the marsh.

"The drawdown promotes seed germination, and it helps the water become cleaner and clearer," Wood said.

Suspended sediment becomes soil after a drawdown, and stays down even after water levels rise again. Freshly germinated marsh plants bloom quickly in the new soil and generate an abundance of seeds. These provide a feast for all swamp creatures, including invertebrates, which in turn become nutritious food for waterfowl.

Wood, who constantly tracks species diversity on Monopoly Marsh, noticed that American featherfoil showed up in the marsh following Monopoly's drawdown in 2000. Featherfoil favors clear, cool water in swamps and marshes. Conditions must be right at Monopoly, for the dainty swamp plant's numbers have been increasing for the past three years.





American Lotus creates a  
"diversity desert" in areas with  
continuously wet conditions

JIM RATHERT



## Bottoming Out

Flooded timber in October can make for a hunter's delight in November. Hunting flooded timber is not a common opportunity in Missouri, but it can be habit-forming when you see the waterfowl banking through the trees toward well-placed decoys.

Waterfowl hunters have good memories of hunting the flooded timber of Duck Creek Conservation Area's pools 2 and 3 and Mingo's Pool 8, but the hunting is no longer as good as it was. During what were considered the "golden years" of the '60s, '70s and '80s, heavy pin and willow oak acorn crops made for fabulous mallard hunting in the green tree reservoirs.

What attracts ducks to flooded timber are the small acorns produced by pin and willow oaks. They are the right size for ducks to swallow and are loaded with carbohydrates and fat, allowing waterfowl to replenish their energy stores during their southward migration.

To attract and hold ducks, and to increase hunting opportunities, these areas usually were flooded in mid-October. This was earlier than they would flood naturally, but early flooding ensured that these wetlands would be in optimal condition for ducks and hunters.

The strategy seemed to work well. The areas drew in lots of ducks, and waterfowlers had great hunting. In the 1990s, however, the larger oaks on the wetter sites began declining. Many large pin oaks died while others were unhealthy and produced few acorns.

Mike Anderson, a Conservation Department forester

and an avid waterfowl hunter, said the problem arose because repetitive early flooding stressed the oaks and made them unhealthy.

He explained that trees can survive winter flooding because, during dormancy, their cells cease activity and require no oxygen. Flooding before trees go dormant, however, cuts back on the amount of time that tree roots have to store carbohydrates. Trees can survive occasional flooding, but 50 years of regular early flooding took its toll on the oaks.

Why were just the oaks affected? Anderson explained that "dormancy doesn't just happen when the leaves change color, its later than we once thought." Most bottomland oaks don't go dormant until near the end of November, while maples, ash, elms, overcup oaks and tupelo are dormant by the end of October. This means that mid-October flooding negatively impacts the oaks that make the pools most attractive to waterfowl.

## Looking to the Future

Repeated poorly timed flooding also reduced the survival of seedling oaks. Older, vigorous, middle-aged trees can tolerate some flooding outside of dormancy. Early fall floods, however, can kill oak seedlings and saplings, preventing them from replacing the aging trees that spawned them.

Cold weather floods are an intrinsic part of the life cycle of these green tree reservoirs. Flooding deposits fresh sediment that mixes with decomposing matter to enrich the soil. After water levels drop, spring plants flourish on the abundant nutrients.

We know that flooding an oak bottomland forest early in the fall is good for ducks and hunters, at least in the short term, but the long-term effect deserves some scrutiny. We are seeing changes in these bottomland pools, as maples and ashes replace oaks in the canopy.

Ash and maple seeds drop early and aren't as readily available to ducks during their migration, nor are the seeds as nutritious as acorns. On the other hand, the leaf litter produced by these species encourages a proliferation of invertebrates, which fuel waterfowl on their early spring migration to northern breeding grounds.

The best bottomland forest, therefore, should contain a mix of oaks, maples, ash and other trees. Achieving this mix might require a trade-off or balance in the timing of the flooding to ensure that this unique hunting opportunity can exist for future generations.

Varying the timing and duration of floods in these forests mimics the natural cycle. Hydrology studies of southeast Missouri have shown that only one in seven years tends to be really wet, while five in seven years tend to

**American featherfoil is a flagship species showing how dry periods help maintain a diversity of plant species. Featherfoil flourished when drawdown management practices were implemented at Monopoly Marsh.**







NOPADOL PAOTHONG

have average rainfall, and one in seven years is really dry.

Managers can fluctuate years of drying with years of early flooding, based on water availability and rainfall patterns over several years. Natural rainfall still contributes to flooding, but many wetlands no longer flood naturally because drainage canals have lowered the water table and changed the abundance of surface water. That's why it is critical to have a management plan that adjusts water levels to encourage maximum diversity in, and longevity of, a wetland.

Delaying flooding in most years until after oaks go dormant might be required to maintain canopies of oaks in our bottomland forests. Otherwise, we risk letting species that can tolerate early flooding take over.

"We have the responsibility of trying to find a balance between sound ecosystem management and providing recreation opportunities," Anderson said.

The problem is particularly pressing because more than 90 percent of Missouri's wetlands have been lost. Of these

**Many animals connected to the swamp also require drier periods for part of their life cycle, or they depend on plants, trees and other species that require drier periods.**

wetlands, bottomland forests are one of the most rare types. There are not enough of these precious resources left to experiment with various strategies, and so the management choices we make now are crucial to maintaining them.

Anderson hopes that the management strategies being employed at Otter Slough, Monopoly Marsh and Duck Creek will teach us how best to preserve the integrity of wetlands throughout the state.

So, as I walked through the dry swamp, I thought that it's not so bad if a swamp dries out now and then, if it means that the swamps will be there for our grandchildren. I saw a formation of ducks soaring above the horizon, and I imagined that they also would approve of the work we are doing. ▲









# To SCOPE *or not to* SCOPE

BY JIM LOW

Whether you choose telescopic sights or not,  
you still need practice time at the range.

DAVIDSTONER



Some hunters let circumstances decide for them what kind of sights to use on their deer rifles. If their rifle came with iron sights, that's the way they shoot it. Others follow conventional wisdom. If all their friends use telescopic sights, they slap a scope on the rifle and never look back. Circumstances forced me to think about the choice.

I always had scopes on my .22 squirrel rifles. Then I bought the deer gun of my dreams—a European-style Savage .30-06 with a beautiful, hand-checked, oiled walnut stock. It was not available with a factory-mounted scope, and I hated to ruin its classic lines with a bulky optical contraption.

**Randy Boeller  
tries out the feel  
of a scope at the  
shooting range.**

Weight was a consideration, too. I hope to take the gun elk hunting in Montana one day, and a scope with mounting hardware would add more than a pound to the load I would have

to carry up hogbacks in thin mountain air.

On the one hand, I thought a scope might be a great asset when trying to make shots at the distances often involved in elk hunting. The magnification would prove useful for long shots at home, too. If you have a firearm capable of taking game at 400 yards, why wouldn't you want a sight capable of such shots?

On the other hand, most of the shots I get at Missouri whitetails are well inside 100 yards. Furthermore, I worried that a scope might be more hindrance than help on close shots or moving deer.

Then there was the question of my vision. My uncorrected vision is nearly 20-20, but I wear bifocals for close-up vision. I wondered how this might change the best choice of sights.

I bought my rifle in June, so I had plenty of time to spend at the shooting range sorting out





all these considerations. Here is what my time at the range revealed.

## IRONING OUT SHOOTING PROBLEMS

For the past 15 years, I have hunted deer exclusively with traditional muzzle-loading rifles. The discipline of shooting weapons that Daniel Boone would have recognized has made me a much better rifleman. My outdoor journal revealed that all but one deer taken with muzzle-loaders have been lung or heart shots. So I was not worried about my ability to take deer at short range with an iron-sighted .30-06.

My journal also records, however, that I never shot at a deer beyond 60 yards. I needed to learn how accurately I could shoot with iron sights at longer distances. The answer turned out to be, “pretty well.”

My first step was to invest in some inexpensive ammunition for familiarization shooting and some high-quality cartridges for serious target work. The accuracy of even the best rifles is only as good as the ammunition you feed it and how comfortable you are with it.

After carefully zeroing the rifle's iron sights at 25 yards, I shot targets at 100 to 200 yards from a shooting vise. I wanted to see what kind of accuracy the rifle was capable of with iron sights and the 150-grain, boat-tailed soft-point bullets I settled on.

The average three-shot group at 100 yards had a 3.5-inch spread. That's excellent for me and iron sights. However, I don't shoot deer from a shooting vise. My next project was to discover how well I shot from normal hunting positions.

Most of my shots are taken from a sitting position. Occasionally I have to shoot standing. Not surprisingly, I did best on the sitting shots at the shooting range. My groups were mostly 6 to 8 inches in diameter at 100 yards.

Standing shots were a different matter. I did well to hold a 10-inch group in that position, and a distressing number of shots landed randomly outside that diameter. The techniques that worked for me at 25 yards were not adequate at 100 to 200 yards. It was time to try another approach.

I got a 6-foot shooting staff and fired several groups—sitting and standing—gripping the staff with my left hand and resting the front stock of the rifle on my fist. This brought virtually all my shots inside an 8-inch circle.

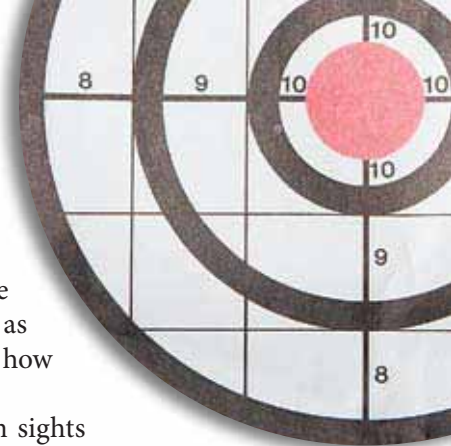
Because the shooting staff provided excellent vertical stability, misses were almost all left or right of the bull's-eye. That is good, since a deer's body is much wider than it is tall. At this point, I felt confident in my ability to take deer at 100 yards and beyond with iron sights.

## OPTICAL CONCLUSION

Then it was time to try a scope. I bought a 3- to 9-power model with a 42mm objective lens. I was ready to pay \$50 more for one with a 50mm objective until I talked with Tony Proper, president of Alpen Optics.

He informed me that a 42mm objective lens gathers all the light that a rifle scope with a 1-inch tube can transmit. He said buying more

Without a scope, I never could have seen the brow tine that made the deer legal. I would have had to pass up the shot.







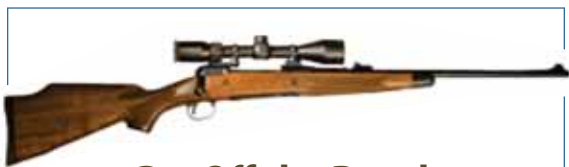
Using a scope  
might help  
when trying to  
determine how  
many points a  
deer has from a  
distance.



glass is a waste of money and adds unnecessary weight. His company sells the larger scopes only because some customers demand them.

My performance shooting a scoped rifle from a shooting vise was awesome—1.25-inch groups at 100 yards. Groups shot from a sitting position expanded to around 4 inches. I still had fliers out to 6 inches, but these consistently landed to the right of the bull's-eye, indicating I had pulled them off-target by jerking the trigger. Regular practice over the next few weeks, with close attention to shooting technique, reduced both the frequency and severity of such wild shots.

The primary advantage of telescopic sights is the ability to see your precise aiming point. However, being able to see the aiming point is a separate thing from being able to squeeze off a shot when the crosshairs are on that point. Holding steady enough for an accurate shot at 200 yards is the same challenge, regardless of what type of sights you use. For me, being able to see the aiming point more clearly resulted in better shooting.



### Get Off the Bench

The accuracy that is possible with a quality scoped rifle fired from a firm rest is truly amazing. Ironically, this can lead to missed opportunities.

Shooters who grow accustomed to the perfect stability of bench shooting get a rude surprise when drawing down on deer without a rest. The cross hairs of a 9-power scope weave disconcertingly back and forth across the animal's flank. The hunter hesitates, and the deer leaves before he or she can squeeze off a shot.

In the same situation, shooters with iron sights are not even aware of the small drift of their aiming point. Shooting practice gives them confidence in their ability to hit a target the size of a deer's heart-lung area, so they pull the trigger and fill their tag.

Practice shooting in different unsupported positions that simulate hunting conditions. That way you will be prepared when the moment of truth arrives.



### REAL WORLD REVELATIONS

This past hunting season, I had a couple of experiences that revealed unforeseen advantages to a scope.

The first occurred when I had a buck standing broadside to me at 80 yards. Looking through my scope at 9X, I was able to determine that it was a 7-pointer, with a fourth, 1.5-inch point on one side. Without a scope, I never could have seen the brow line that made the deer legal. I would have had to pass up the shot.

The second revelation laid to rest my concern about tracking moving targets with a scope. A doe came toward my tree stand at a canter, passing right in front of me. I was sure she would stop and offer a standing shot, but after passing my tree stand she turned 180 degrees and trotted back the way she had come. Seeing back straps and loins rapidly disappearing into the woods, I shouldered my rifle, and with the scope on 3X, I had no trouble snapping off a shot as the cross hairs intersected her flank. The lung shot brought her down within 100 yards. I am not sure I could have done that with iron sights.

So I have decided to keep the scope on my rifle. It isn't a perfect arrangement, but it is the best for my hunting situation, my vision limitations and my shooting ability. If my Montana trip never materializes, I may sell the scope and go back to the pure simplicity of iron sights. Either way, I know that making a good shot depends more on practice than on paraphernalia. ▲

**The mount on the left with two openings is a "shoot-through" mount that allows one to use iron sights. The mount on the right is a standard mount.**









# BUILDING with Nature

Development doesn't have to be at odds with conservation.

BY PERRY ECKHARDT AND WENDY SANGSTER ■ PHOTOS BY NOPPADOL PAOTHONG





Who hasn't heard someone reminisce about the good old days of hunting quail and rabbit in a field that is now a shopping mall, or finding crawdads in a creek that now runs in a pipe?

Many of us dream of escaping to the country, to rural views of meadows and trees, and a chance to enjoy the sounds of birds and frogs rather than passing traffic. Yet when we move there, we bring the things we are trying to escape with us.

We find ourselves still surrounded by roads and houses, perhaps more widely spaced but with expanses of monotonous mowed grass. The peaceful spot in the country we dreamed of is filled with the buzz of lawn mowers and weed-eaters all weekend long.

This dilemma is not new. Societies have tried to strike a balance between

the built and the natural environment since the first village was created. We needed to beat back the wilderness to build safe, convenient, comfortable places for people to live, but our conquest often meant eliminating natural habitats, or confining them to small parks, which led to a host of environmental problems, including flooding and stream erosion.

However, a new approach brings together conservation and development in ways that benefit people and nature. This approach is known as conservation-friendly development.

### Conservation-Friendly

Conservation-friendly development incorporates sustainable design, low-impact development and green building to create living space that is more

**The parking lot at The College School of Webster Groves uses a pervious paving design, which allows water to pass through the pavement and gradually seep into the soil.**





in harmony with nature. The following principles drive the new approach.

- Avoid consuming natural habitat by promoting infill development and redevelopment to make better use of existing developed areas.
- Conserve sensitive or important natural resources, such as streams, wetlands and remnant prairies. These resources improve the quality of life within the development.
- Preserve open space and green corridors for wildlife habitat and human enjoyment and recreation. Connect these areas to create a system of greenways across neighboring developments, communities, counties and even states.
- Recognize that trees, streams and other natural features are essential infrastructure for a community and need investment and maintenance to provide the most benefit.
- Minimize changes to natural soils, drainages and topography, and if they have changed, seek to restore their original function.
- Encourage the use of energy-efficient, renewable or reusable technologies such as green roofs and geothermal heat pumps.

### Best Management Practices

A conservation-friendly developer often implements proven techniques, known as Best Management Practices. The following are a few examples:

#### Conservation cluster design.

Clustering buildings on smaller lots allows the remaining land, usually environmentally sensitive habitat, in the development to serve as common space for people to enjoy. Concentrating buildings provides room for both wildlife and people and allows for better stormwater management.

#### Vegetated swales and rain gardens.

Unlike storm sewers and large



stormwater detention basins, swales and rain gardens delay runoff from rains and provide a chance for more water to filter into the ground and be used by vegetation. This reduces runoff and flooding, and filters the water through plants and soils to remove contaminants picked up from roads and lawns. It also replenishes streams and aquifers with clean, naturally filtered water, helping to restore the natural water cycle. These practices are often more effective and less expensive than larger stormwater structures like detention basins, and they provide wildlife habitat.

**Natural landscaping filters water through plants and soils to remove contaminants picked up from roads and lawns.**

#### Naturalized retention basins.

Most local government regulations require developments to provide temporary storage of stormwater to prevent flooding. Standard designs provide no other function than water storage. Basins designed to act more like natural systems and that use native vegetation increase the aesthetics, water quality and conservation value of an area. They are also less likely to attract nuisance geese or experience shoreline erosion.



## CONSERVATION-FRIENDLY Benefits

### TO THE ENVIRONMENT

- Reduce negative impacts to streams and fish/wildlife habitat
- Protect water quality by reducing pollutants that reach our streams
- Preserve trees and other native vegetation
- Reduce air pollution

### TO THE COMMUNITY

- Help maintain drinking water supplies
- Increase recreational opportunities
- Lower the cost and maintenance of streets, curbs, gutters and other infrastructure
- Increase property values
- Reduce the potential for flooding
- Reduce landscape maintenance costs

### TO THE DEVELOPER

- Lower construction costs
- Reduce land clearing and grading costs
- Reduce costs of streets, curbs, gutters and other infrastructure
- Provide marketing opportunities
- Increase lot values

### Decrease impervious surfaces.

Impervious surfaces, such as roads, parking lots and rooftops, increase stormwater runoff. Impervious surfaces can be reduced by narrowing streets, decreasing parking requirements and by building up, instead of out. Using permeable paving materials allows water to naturally infiltrate into the soil. Reconditioning soils compacted by construction equipment increases the amount of water they can absorb and filter.

### Water harvesting.

Typical developments shed much more water than do natural systems. Rain barrels or cisterns capture rain from rooftops and can then be used to water plants or wash outdoor furniture. Rain gardens delay runoff by capturing it in shallow depressions filled with plants. The runoff provides natural irrigation for the plants, and the gardens shine as a bonus.

### Native landscaping.

Landscaping with native plants replaces lost habitat and helps improve water quality and conserve soils. Native landscaping requires few chemicals and little mowing, and it creates interesting features and recreational opportunities. Using native plants also connects us to our cultural heritage and establishes a legacy for those who come after us.

The above principles and practices of conservation-friendly development make economic sense. For example, it costs less to conserve a stream and its buffer of trees than to remove all the trees, relocate and reshape the stream with heavy equipment, and then line it with concrete.

Site preparation for a conservation subdivision is also cost-effective. Less of the property needs to be cleared and graded, and standard infrastructure like roads and sewer lines are concen-

trated in a smaller area. Conservation-friendly practices usually are more stable than large-scale practices such as levees and dams, the failure of which often come with tragic results.

What's more, conservation practices improve your quality of life. Wouldn't you rather live next to a natural, tree-lined stream than a concrete channel? You could dabble your feet in the unspoiled stream on hot August nights. Similarly, in a conservation-friendly development, you could walk out your back door and spend the evening strolling through the woods with your family.





Everyone benefits when developers adopted conservation-friendly principles and practices. They would become more commonplace if government regulations expressly allowed these practices instead of requiring variances that result in costly delays for developers.

Consumers could also demand conservation-friendly homes, assuring developers of a market for their product. Once demand appears, developers and their design consultants will learn to build and promote development that is conservation-friendly, and financial institutions will recognize

the economic value of such developments in their loan approval process.

The Department of Conservation encourages and supports communities, local governments and developers in their efforts to adopt conservation-friendly development practices.

The Department currently has five community conservationists in Kansas City, St. Louis and Springfield (see Page 3 for regional office phone numbers). Community conservationists assist neighborhoods, local governments and businesses as they work to include quality habitat for both people and nature. ▲

**Native landscaping and rain gardens can be used to great effect to control runoff and beautify residential areas. This rain garden, below, in front of Jordan and Connie Heimans' residence in St. Louis, is an excellent example of a well-done rain garden.**





# Hunting and Fishing Calendar

## FISHING

Black Bass (certain Ozark streams, see the *Wildlife Code*)

5/24/08 2/28/09

impoundments and other streams year-round

Bullfrogs and Green Frogs Sunset Midnight

6/30/08 10/31/08

Gigging Nongame Fish 9/15/08 1/31/09

Trout Parks 3/1/08 10/31/08

## HUNTING

Coyotes 5/12/08 3/31/09

Crow 11/1/08 3/3/09

Deer

Archery 9/15/08 11/14/08

11/26/08 1/15/09

Firearms

Urban 10/3/08 10/6/08

Youth 11/1/08 11/2/08

1/3/09 1/4/09

November 11/15/08 11/25/08

Muzzleloader 11/28/08 12/7/08

Antlerless 12/13/08 12/21/08

Dove 9/1/08 11/9/08

Furbearers 11/15/08 1/31/09

Groundhog 5/12/08 12/15/08

Pheasants

North Zone 11/1/08 1/15/09

South Zone 12/1/08 12/12/08

Youth (north zone only) 10/25/08 10/26/08

Quail 11/1/08 1/15/09

Youth (statewide) 10/25/08 10/26/08

Rabbits 10/1/08 2/15/09

Ruffed Grouse 10/15/08 1/15/09

Sora and Virginia Rails 9/1/08 11/9/08

Squirrels 5/24/08 2/15/09

Teal 9/6/08 9/21/08

Turkey

Archery 9/15/08 11/14/08

11/26/08 1/15/09

Firearms 10/1/08 10/31/08

Wilson's (common) Snipe 9/1/08 12/16/08

Woodcock 10/15/08 11/28/08

## TRAPPING

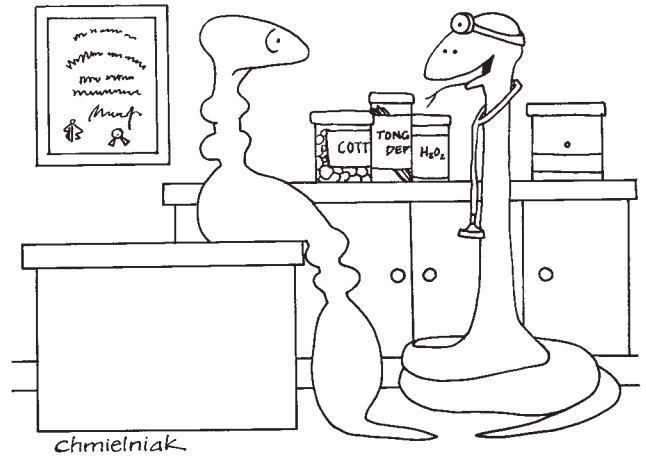
Beaver and Nutria 11/15/08 3/31/09

Furbearers 11/15/08 1/31/09

Otters and Muskrats 11/15/08 see *Wildlife Code*

For complete information about seasons, limits, methods and restrictions, consult the *Wildlife Code* and the current summaries of *Missouri Hunting and Trapping Regulations* and *Missouri Fishing Regulations*, the *Fall Deer and Turkey Hunting Regulations and Information*, the *Waterfowl Hunting Digest* and the *Migratory Bird Hunting Digest*. For more information visit [www.MissouriConservation.org/8707](http://www.MissouriConservation.org/8707) or permit vendors.

The Department of Conservation's computerized point-of-sale system allows you to purchase or replace your permits through local vendors or by phone. The toll-free number is 800-392-4115. Allow 10 days for delivery of telephone purchases. To purchase permits online go to [www.wildlifelicenses.com/mo/](http://www.wildlifelicenses.com/mo/).



"Looks like you need to quit those between-meal snacks."

## Contributors



Community Conservationist PERRY ECKHARDT strives to improve urban areas by using native plants for landscaping and stormwater control. Hailing from Temple, Okla., he has embraced Missouri, especially its streams and hiking trails. He also enjoys photography, losing to his wife on the Wii and chasing his 4-year-old.

A. J. Hendershott lives with his wife, Cheryl, and two children, Cheyenne and Hunter, in rural Cape Girardeau County. When not hiking, hunting or sketching, he crafts wooden longbows. A. J. is an Outreach and Education regional supervisor with the Conservation Department and holds wetlands in high regard.



As far as JIM LOW can tell, he was born with a need to hunt. Pursuing game removes him from time, making him as young as spring and as old as creation. He is an 11-time winner of the Izaak Walton League of America's Outdoor Ethics Writing Award.

WENDY SANGSTER began her career with the Missouri Department of Conservation as a wildlife biologist in 1997. Her current work as a community conservationist in Kansas City involves advising communities about land-use planning and design practices that help to conserve natural resources.





## TIME CAPSULE

### August 1998

*They Might Be Giants* was written by Charlotte Overby about giant silk moths. In Missouri, there are 13 species of giant silk moths, one being the Saturniid, the largest member of the moth and butterfly family with silky, carpet-plush wings, furry bodies and delicate legs. Males fly great distances to reach females and will stay attached to their mates for a day. Their life's work from reproduction is one week. The Saturniid is "among the most spectacular animals found in North America's forest and neighborhoods." There are 1,500 species of Saturniids around the world. The majority lives in the tropics and are endangered, but 50 species live in North America. You will see these giant moths in late May or June, after midnight.

—Contributed by the Circulation staff



## AGENT NOTES

*Agents are the face of MDC and have its full support.*

WE MAINTAIN HIGH standards for our conservation agents to ensure the protection of our forest, fish and wildlife resources and the maintenance of the culture of conservation. Agent applicants are not even considered for the job unless they have at least a bachelor's degree in the field of natural sciences or criminal justice.

We train the most promising applicants for 26 weeks. They learn law enforcement techniques and all facets of resource management. At the end of their paid training, which marks the beginning of their careers, they know the ins and outs of the *Wildlife Code*, as well as the *Criminal Statutes of Missouri*, and are prepared to help the public deal with such issues as fish kills, nuisance wildlife and land management.

To me, being an agent is the best job in the world. It combines law enforcement with teaching, helping and public relations. It's a job ideally suited to those who like people and love the outdoors. Read about the benefits and responsibilities of being a Conservation Agent at [www.MissouriConservation.org/18196](http://www.MissouriConservation.org/18196).

If you're cut out to be a Conservation Agent, now is a good time to apply. The application deadline for the next training class is Aug. 8. Find details at [www.MissouriConservation.org/2129](http://www.MissouriConservation.org/2129) and click on "Conservation Agent Trainee," or call me at 573-751-4115, ext. 3819. I'd be happy to talk with you.

Cheryl Fey is programs supervisor for the Conservation Department's Protection Division. If you would like to contact the agent for your county, phone your regional Conservation office listed on Page 3.



## behind the CODE

*Sturgeon rules protect endangered species.*

BY TOM Cwynar

Given the price of caviar, some consider commercial fishing for Missouri's shovelnose sturgeon to be profitable, despite the \$500 Shovelnose Sturgeon Commercial Harvest Permit required and a per net fee. The *Wildlife Code* prohibits the harvest of federally endangered pallid sturgeon and state endangered lake sturgeon. Commercial harvest of shovelnose sturgeon is restricted to protect the endangered sturgeons and to provide times and places of refuge for all sturgeon. Restrictions are based on the Department's continuous monitoring of sturgeon populations.

Commercial fishing for shovelnose is allowed only on the Mississippi River and on portions of the Missouri River. No commercial fishing for sturgeon is allowed in a sturgeon-rich stretch of the Missouri between Jefferson City and Chamois, or in the river upstream from Kansas City.

Commercial anglers only may keep shovelnose from 24 to 30 inches long (measured snout to fork of tail) on the Missouri and 24 to 32 inches long on the Mississippi. This preserves maturing stock for future reproduction and reduces the chances of mistakenly harvesting pallid sturgeon, which grow larger than shovelnose.

Commercial anglers must keep shovelnose sturgeon whole and intact and cannot possess extracted eggs of any species while on the water. They also must file monthly catch reports and keep receipts of all transactions involving fish eggs.





# “I AM CONSERVATION”

Columbia resident Monica Lee wanted her 12-year-old nephew, Seo-Woo Kwak, to experience the Missouri outdoors, so she brought him from Seoul, South Korea, for a month-long visit. As a resident of a large urban area, Seo-Woo had only experienced squirrels and house sparrows. “It’s so great to show my nephew this wonderful nature conserved right here in Missouri,” said Lee. “We have such wonderful wildlife and flowers to show him.”

To learn more about conservation activities, visit [www.MissouriConservation.org](http://www.MissouriConservation.org). —PHOTO BY NOPPADOL PAOTHONG



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Missouri households*